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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Lau	§	Group Art Unit: 1745 Examiner: Cantelmo, G.
Serial No. 09/476,669	§	Atty. Dkt. No. 5298-03500 (PM99021)
Filed: December 30, 1999	§	
For: METHOD FOR FORMING A METALLIZATION STRUCTURE IN AN INTEGRATED CIRCUIT	§	I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on the date indicated below: February 10, 2003 Date — Kevin L. Daffer

APPEAL BRIEF

Box AF
Assistant Commissioner for Patents
Washington D.C. 20231

Sir/Madam:

Further to the Notice of Appeal mailed on December 2, 2002 and received at the U.S. Patent and Trademark Office on December 9, 2002, the Appellant presents this Appeal Brief. The Notice of Appeal was filed following receipt of a Final Office Action mailed on August 30, 2002. The Appellant hereby appeals to the Board of Patent Appeals and Interferences from a final rejection of claims 1-11 and 30 and respectfully requests that this appeal be considered by the Board.

I. REAL PARTY IN INTEREST

The subject application is owned by Cypress Semiconductor Corporation, a corporation having a place of business at 3901 North First Street, San Jose, CA, 95134.

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II. RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-20 were originally filed in the present application on December 30, 1999. Claims 19 and 20 were canceled on January 12, 2001 pursuant to a restriction requirement filed in an Office Action mailed December 12, 2000. In response to an Office Action mailed March 12, 2001, claims 1, 3-5, 7-9, and 12-18 were amended and claims 19-30 were added. Claims 1, 12, and 16 were further amended and claim 21 was canceled in response to a final Office Action mailed September 26, 2001. In addition, claims 24-29 were withdrawn in the final Office Action pursuant to a restriction requirement. A Request for Continued Examination was filed on January 28, 2002 to continue the prosecution of the case. In an Office Action mailed March 6, 2002, claims 12-18, 22 and 23 were deemed allowable while the rejection of claims 1-11 and 30 were sustained. In response, claim 1 was further amended.

In a final Office Action mailed August 30, 2002, claims 1, 3-7, 11, and 30 were rejected under 35 U.S.C. § 102(e) and claims 2 and 8-10 were rejected under 35 U.S.C. § 103(a). No changes to the claims were made in the response to the final Office Action. However, an Advisory Action mailed January 2, 2003 stated that the amendments in the response to the final Office Action mailed August 30, 2002 will be entered and, therefore, are reflected in the current state of the claims, which include allowed claims 12-18, 22 and 23 and rejected claims 1-4, 6, 7, 9-11 and 30. Claims 5 and 8 were neither canceled nor amended in response to the final Office Action and, therefore, are still pending in the presently claimed case. The Advisory Action failed to indicate the status of such claims. Consequently, it is presumed that the rejection of claims 5 and 8 stand as recited in the final Office Action mailed August 30, 2002. As such, claims 1-11 and 30 are the subject of this appeal. A copy of claims 1-11 and 30, as on appeal, is included in the Appendix hereto.

IV. STATUS OF AMENDMENTS

No amendments to the claims have been filed subsequent to their final rejection. Therefore, the Appendix attached hereto reflects the current state of the claims.

V. SUMMARY OF THE INVENTION

Appellant's claimed invention relates to integrated circuit manufacturing and more particularly to a method for forming metallization structures (Field of the Invention -- page 1, lines 5-6). In general, the method may include etching a cavity comprising a base and opposing sidewalls within a dielectric layer arranged upon a lower portion of a microelectronic topography (Fig. 4). In some cases, the cavity may be configured as a via defined within the dielectric layer and extending to a conductive region of the microelectronic topography (Specification -- page 14, lines 12-14). In any case, the method may further include ion metal plasma depositing a wetting layer within the cavity (Specification -- page 5, lines 5-6). In some embodiments, the wetting layer may include titanium or, more preferably, may be composed of relatively pure titanium (i.e., the wetting layer consists essentially of titanium) (Specification -- page 16, lines 22-23).

Broadly speaking, ion metal plasma deposition processes include those sputtering processes in which metal atoms sputtered from a target are ionized and then directed toward a deposition surface in a direction substantially perpendicular to the deposition surface (Specification -- page 5, lines 13-16). More specifically, ion metal plasma depositing the wetting layer may include supplying sufficient DC power to a target to induce sputtering of metal atoms from the target toward a deposition surface (Specification -- page 17, lines 14-16). In addition, ion metal plasma depositing the wetting layer may include supplying a sufficient RF power to an induction coil spaced between the target and deposition surface to ionize at least a portion of the metal ions sputtered from the target (Specification -- page 19, lines 13-14). Furthermore, ion metal plasma depositing the wetting layer may include applying a sufficient bias power to a pedestal upon which the deposition surface is arranged in order to direct ionized metal atoms toward the deposition surface in a substantially perpendicular direction (Specification -- page 19, lines 16-18). In some embodiments, such an application of bias power may be sufficient to splash deposited metal at the bottom of the cavity to sidewalls of the cavity (Specification -- page 21, lines 1-3).

In any case, the method may further include sputter depositing a bulk metal layer within the cavity and upon the wetting layer (Specification -- page 5, lines 7-8). In a preferred embodiment, the bulk metal layer is primarily composed of aluminum (Specification -- page 23, lines 10-11). In addition, sputter depositing of the bulk metal layer is preferably performed in a single deposition chamber and at least until the cavity is substantially filled (Specification -- page 5, lines 8-9). Furthermore, the method

may further include depositing an insulating layer above the bulk metal layer (Specification -- page 28, line 28). In some cases, the method may include a pre-cleaning process which is performed before the deposition of any metallic layers within the cavity. Such a pre-cleaning process may include sputtering away an upper portion of the dielectric layer to remove contamination configured thereon (Specification -- page 14, lines 21-24). In some cases, the pre-cleaning process may sputter away an upper portion of the dielectric layer to form tapered cavity sidewalls. By tapering or "rounding off" upper portions of the cavity sidewalls, the ability of reflowing a bulk metal material within the cavity may be increased (Specification -- pages 14 and 15, lines 28-30 and 1, respectively).

VI. ISSUES

1. Whether claims 1, 3-7, 11, and 30 are unpatentable under 35 U.S.C. § 102(e) by U.S. Patent No. 5,985,759 to Kim et al. (hereinafter "Kim").

2. Whether claim 2 is unpatentable under 35 U.S.C § 103(a) over Kim in view of U.S. Patent No. 6,045,666 to Satitpunwaycha et al. (hereinafter "Satitpunwaycha").

3. Whether claim 8 is unpatentable under 35 U.S.C § 103(a) over Kim in view of U.S. Patent No. 6,217,721 to Xu et al. (hereinafter "Xu").

4.

5. Whether claims 9 and 10 are unpatentable under 35 U.S.C § 103(a) over Kim in view of U.S. Patent No. 5,371,042 to Ong (hereinafter "Ong").

VII. GROUPING OF CLAIMS

Claims 1-11 (Group I) stand or fall together.
Claim 30 (Group II) stands or falls alone.

The reasons why the two groups of claims are believed to be separately patentable are explained below in the appropriate parts of the Argument.

VIII. ARGUMENT

Due to the difficulty in etching many metallization materials, metallization structures are often formed by first depositing a dielectric material which will separate the metallization structures and then patterning cavities in the dielectric material. Once the cavities are formed, metals can then be deposited in the cavities to form metallization structures. Aluminum is desirable as a metallization material because of, among other things, its relatively low resistance and good current-carrying density. One process for forming a metallization structure incorporating aluminum involves first sputter depositing a titanium wetting layer into the cavity in which the metallization structure will be contained. The titanium wetting layer lines the sidewalls and base of the cavity. A bulk metal layer of aluminum is then sputter deposited onto the wetting layer to fill the cavity. The titanium wetting layer helps to minimize or avoid agglomeration of the aluminum layer and provides for continuous metal coverage along the sidewalls and bottom of a cavity. In general, an effective wetting layer allows a subsequent bulk metal layer to be deposited more smoothly, and thus with higher quality. *See* Specification page 1, lines 28-30; page 2, lines 3-4 and 13-14; and page 3, lines 1-9.

Wetting layers are often deposited by standard sputtering processes, which may be considered to be a group of sputtering processes that do not impart any significant degree of directionality to the sputtered atoms. Standard sputtering processes, thus, allow sputtered atoms to contact the deposition surface at a variety of angles ranging from almost parallel to perpendicular. Standard sputtering processes, however, are unable to suitably deposit a wetting layer in high aspect ratio (i.e., cavity depth divided by the cavity width) cavities. Generally speaking, the smaller the opening of the cavity, the less likely that high impact angle atoms will actually enter the cavity. So as aspect ratios increase, and as cavity openings become narrower, the high quantity of high impact angle atoms deposited in standard sputtering processes only increases the difficulty these processes often have in depositing effective wetting layers. Unfortunately, if an adequate wetting layer cannot be formed, a bulk metal layer (e.g., one composed of aluminum) deposited in the cavity may not have the desired quality. Consequently, the ability of such a metallization structure to transmit electrical signals may be impaired, or even destroyed. *See,* Specification: page 3, lines 11-22 and page 4, lines 12-15.

The invention as recited in claims 1-11 and 30 addresses the above-described problems by providing a method for fabricating a metallization structure which includes ion metal plasma depositing a wetting layer within a cavity defined in a dielectric layer and subsequently sputter depositing a bulk

metal layer within the cavity and upon the wetting layer. In general, ion metal plasma deposition processes include those sputtering processes in which metal atoms sputtered from a target are ionized and then directed toward a deposition surface in a direction substantially perpendicular to the deposition surface. In this manner, the method enables deposition of an adequate wetting layer even in narrow cavities having high aspect ratios. More specifically, the process parameters of the ion metal plasma deposition process are preferably selected to produce a wetting layer of optimal quality in small, high aspect ratio cavities. In particular, the power parameters of the wetting layer deposition process are preferably selected to (1) maintain enough sputtered metal neutrals for good sidewall coverage, (2) generate sufficient metal ions with sufficient impact energy to prevent metal build-up (and subsequent shadowing of the lower sidewalls) on the tapered portions of the cavity sidewalls, and (3) resputter the bottom of a cavity to improve lower sidewall coverage. *See* Specification page 5, lines 4-11 and page 7, lines 10-17.

ISSUE 1 ARGUMENTS

A. Patentability of Group I Claims 1, 3-7 and 11

1. Kim does not disclose a method for fabricating a metallization structure which includes applying a sufficient bias power to splash deposited metal at the bottom of a cavity to sidewalls of the cavity.

Claim 1 recites in part: "... applying a sufficient bias power to splash deposited metal at the bottom of the cavity to sidewalls of the cavity ... ." In some embodiments, Kim discloses applying a bias power to the wafer during the deposition of a metal layer, as shown in Table 1 in column 13 of Kim. However, there is no teaching or suggestion within Kim that such an application of a bias power is sufficient to splash deposited metal at the bottom of a cavity to sidewalls of the cavity. On the contrary, Kim specifically teaches applying a wafer bias such that a layer may be "... mostly deposited at the bottom of the contact via, rather than on the sidewalls." (Kim, column 9, lines 18-20). As such, Kim cannot anticipate the limitations of claim 1. More specifically, since there is no mention within Kim of splashing deposited metal from the bottom of a cavity to the sidewalls of the cavity, particularly during an application of a bias power at a level sufficient to achieve such an undertaking, Kim cannot anticipate the limitations of the claim 1. The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP 2131.

2. **Teaching a range of bias power which is comparable to the exemplary levels cited in the Specification of the application does not necessarily teach the limitations of the presently claimed case.**

Exemplary levels of a bias power applied to a pedestal upon which a topography is arranged is cited on page 21, lines 25-27 of the Specification of the presently claimed case as being "between 100 and 200 W. More preferably, the bias power applied to the pedestal is about 135-165 W, and is optimally about 150 W." The Office Action surmises that since Kim teaches an application of bias power between 0 and 500 W, Kim anticipates the limitations of claim 1. However, a specific range of bias power is not claimed in the present case. Rather, a level which is capable of producing a particular action is claimed. As noted above, Kim does not disclose applying bias power at a level sufficient to splash deposited metal at a bottom of a cavity to the sidewalls of the cavity. Consequently, Kim does not disclose the limitations of the presently claimed case.

The fact that Kim teaches a range of bias power that overlaps with the exemplary levels cited in the Specification of the application does not overcome such a lack of disclosure. In particular, the range of bias power needed to splash metal from the bottom of a cavity to the sidewalls of a cavity may depend on a variety of parameters of the deposition process, such as but not limited to, the temperature and/or pressure of the deposition chamber, for example. In addition, the size of the topography upon which a layer is deposited may affect the level of the bias power to sufficiently perform such a function. In fact, Kim teaches that sidewall coverage may be controlled by a plurality of process parameters. "In this particular instance, chamber pressure and wafer bias are used to control contact/via sidewall coverage." (Kim, column 9, lines 33-34).

In addition, Kim teaches, "By maintaining a high wafer bias, the trajectories of the ionized target atoms can be modified to be substantially perpendicular to the wafer, and thus in line with the depth direction of the contact/via structure, which enables many of the ionized atoms to reach the bottom of the contact/via structure." (Kim, column 9, lines 23-28). There is no teaching or suggestion within Kim about applying a bias power at a level with which to control the speed at which the ionized target atoms are projected toward a surface. Rather, Kim only teaches that the trajectories of the ionized target atoms can be altered with an application of a bias power. As such, the bias power range cited in Kim does not necessarily infer a bias power sufficient to splash deposited metal at a bottom of a cavity to the sidewalls of the cavity without some teaching or suggestion of such an action. Furthermore, the application of bias

power recited within claim 1 is not limited to the exemplary levels cited in the Specification of the application. Consequently, the presently claimed case is patentably distinct over the cited art.

3. There is no motivation within Kim to apply a bias power which is sufficient to splash deposited metal at the bottom of a cavity to the sidewalls of the cavity.

Not only is the application of a bias power at a level sufficient to splash deposited metal at a bottom of a cavity to the sidewalls of the cavity not taught by Kim, but there is no motivation for such a bias power application in Kim. As stated above, Kim specifically teaches applying a wafer bias such that a layer may be "... mostly deposited at the bottom of the contact via, rather than on the sidewalls." (Kim, column 9, lines 18-20). Kim supports such a deposition technique in order to prevent deposition difficulties of aluminum upon the wetting layer.

> Reducing the sidewall Ti layer thickness also reduces the amount of TiOx that is formed on the sidewall when oxygen is introduced into the chamber in subsequent process steps. Any oxygen on the sidewall may diffuse through the third layer of Ti/TiN and contaminate the fourth layer upper surface Ti wetting layer, which causes deposition difficulties when the aluminum is deposited on the wetting layer surface. (Kim, column 9, lines 38-46).

Since Kim specifically teaches maximizing the deposition of metal on the bottom of a cavity relative to the deposition of the metal upon sidewalls of a cavity, there is no motivation for Kim to teach the limitations of claim 1.

4. Kim fails to provide an adequate amount of specificity with which to anticipate a bias power application which is sufficient to splash deposited metal at the bottom of a cavity to the sidewalls of the cavity.

As noted above, there is no teaching or suggestion within Kim about applying a bias power at a level with which to control the speed at which the ionized target atoms are projected toward a surface. Rather, Kim only teaches that the trajectories of the ionized target atoms can be altered with an application of a bias power. As such, splashing deposited metal from the bottom of a cavity to its sidewalls through the application of a sufficient bias power may be deemed an unexpected result in light of the teachings of Kim. Consequently, it is asserted that the bias power range cited in Kim does not provide an adequate amount of specificity with which to anticipate the limitations of claim 1.

> In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with 'sufficient specificity to constitute an anticipation under the statute.' What constitutes a 'sufficient specificity' is fact dependent. If the claims are directed to a narrow range, the

reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with 'sufficient specificity' to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. MPEP 2131.03

Conclusion

As explained in Arguments 1-4 above, at least some limitations of independent claim 1 are not disclosed by the cited art. There is, furthermore, no teaching, suggestion or motivation to modify the cited reference to teach these claim limitations. In addition, teaching a range of bias power which is comparable to the exemplary levels cited in the Specification of the application does not necessarily teach the limitations of the presently claimed case. Moreover, the cited art fails to provide an adequate amount of specificity with which to anticipate the claim limitations. For at least these reasons, independent claim 1 is patentably distinct over the cited art, and the § 102(e) rejection of Group I claims 1, 3-7 and 11 is, therefore, asserted to be erroneous.

B. <u>Patentability of Group II Claim 30</u>

1. **Kim does not disclose ion metal depositing a wetting layer consisting essentially of titanium upon and in contact with the base and sidewalls of a cavity within a dielectric layer and subsequently sputter depositing a bulk metal layer upon and in contact with the wetting layer.**

Claim 30 recites:

> A method for fabricating a metallization structure, comprising: etching a cavity comprising a base and opposing sidewalls within a dielectric of a topography; ion metal plasma depositing a wetting layer consisting essentially of titanium on and in contact with the base and the sidewalls of said cavity; and sputter depositing substantially an entirety of a bulk metal layer on and in contact with the wetting layer.

Kim discloses depositing a number of wetting layers within contact via 10 prior to the deposition of aluminum 28. However, not all of the wetting layers consist essentially of titanium. In particular, Kim teaches a barrier layer structure including "... second layer 20 of oxygen-stuffed titanium and/or titanium nitride." (Kim, column 8, lines 8-9) and "... third layer 24 of titanium nitride." (Kim, column 8, line 27). As such, Kim does not teach ion metal depositing a wetting layer consisting essentially of titanium upon and in contact with the base and sidewalls of a cavity <u>and</u> subsequently sputter depositing a bulk metal layer upon and in contact with such a wetting layer. Kim does teach depositing first and fourth layers of

titanium underneath and above the titanium nitride and oxygen-stuffed titanium layers. However, neither of the first and fourth titanium layers are arranged in upon and in contact with the base and the sidewalls of said cavity and with a subsequently deposited bulk metal layer as in the presently claimed case. Consequently, Kim does not anticipate the limitations of claim 30. The standard for "anticipation" is one of fairly strict identity. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. Of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP 2131.

2. There is no motivation within Kim to ion metal deposit a wetting layer consisting essentially of titanium upon and in contact with the base and sidewalls of a cavity within a dielectric layer and subsequently sputter deposit a bulk metal layer upon and in contact with the wetting layer.

Since Kim specifically teaches depositing wetting layers which include oxygen and/or nitride in combination with titanium in order to improve the effective barrier properties of the contact structure, there is no motivation within Kim to teach the limitations of claim 30. In particular, Kim specifically teaches depositing an oxygen-stuffed titanium layer "... in order to improve the effectiveness of the titanium and/or titanium nitride as a barrier layer. The presence of oxygen in the titanium matrix disrupts the formation of channels through which mobile silicon atoms can travel." (Kim, column 8, lines 13-17). In addition, Kim teaches depositing a titanium nitride layer within the contact via to serve "... as the main barrier layer to prevent migration of silicon to the top of the barrier structure, where it could react with aluminum during filling of the contact." (Kim, column 8, lines 31-33). Consequently, there is no motivation within Kim to ion metal deposit a wetting layer consisting essentially of titanium upon and in contact with the base and sidewalls of a cavity within a dielectric layer and subsequently sputter deposit a bulk metal layer upon and in contact with the same titanium wetting layer.

Conclusion

As explained in Arguments 1 and 2 above, the limitations of Group II claim 30 is not taught or suggested by the cited art. There is furthermore no teaching, suggestion or motivation to modify the cited art to teach the claim limitations. For at least these reasons, claim 30 is patentably distinct over the cited art, and the § 102(e) rejection of Group II claim 30 is therefore asserted to be erroneous.

ISSUE 2 ARGUMENTS

A. Patentability of Group I Claim 2

Since claim 2 of Group I is dependent from claim 1 of Group I, the arguments presented above for the patentability of claim 1, 3-7, and 11 apply equally to claim 2 and are incorporated herein by reference. In particular, since Kim does not teach the limitations of the claim 1, no combination of references with Kim can teach the limitations of the claims dependent from claim 1. Therefore, the §103(a) rejection of Group I claim 2 over Kim in view of Satitpunwaycha is asserted to be erroneous.

ISSUE 3 ARGUMENTS

B. Patentability of Group I Claim 8

Since claim 8 of Group I is dependent from claim 1 of Group I, the arguments presented above for the patentability of claim 1, 3-7, and 11 apply equally to claim 8 and are incorporated herein by reference. In particular, since Kim does not teach the limitations of the claim 1, no combination of references with Kim can teach the limitations of the claims dependent from claim 1. Therefore, the §103(a) rejection of Group I claim 8 over Kim in view of Xu is asserted to be erroneous.

ISSUE 4 ARGUMENTS

C. Patentability of Group I Claims 9 and 10

Since claims 9 and 10 of Group I are dependent from claim 1 of Group I, the arguments presented above for the patentability of claim 1, 3-7, and 11 apply equally to claims 9 and 10 and are incorporated herein by reference. In particular, since Kim does not teach the limitations of the claim 1, no combination of references with Kim can teach the limitations of the claims dependent from claim 1. Therefore, the §103(a) rejection of Group I claim 8 over Kim in view of Ong is asserted to be erroneous.

IX. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-11 and 30 was erroneous, and reversal of his decision is respectfully requested.

Respectfully submitted,

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X. APPENDIX

The present claims on appeal are as follows.

1. (Twice Amended) A method for fabricating a metallization structure, comprising:

ion metal plasma depositing a wetting layer within a cavity of a dielectric layer;

applying a sufficient bias power to splash deposited metal at the bottom of the cavity to sidewalls of the cavity, wherein said applying occurs during said ion metal plasma depositing the wetting layer; and

sputter depositing, within a single chamber, substantially an entirety of a bulk metal layer upon the wetting layer.

2. The method of claim 1, further comprising depositing an insulating layer above the bulk metal layer.

3. (Amended) The method of claim 1, wherein said sputter depositing comprises sputter depositing the bulk metal layer within the cavity until the cavity is substantially filled.

4. (Amended) The method of claim 1, wherein said wetting layer comprises titanium.

5. (Amended) The method of claim 1, wherein the topography comprises a lower portion of a microelectronic topography below said dielectric layer, and wherein said ion metal plasma depositing a wetting layer comprises depositing the wetting layer upon sidewalls of the cavity and upon an upper surface of the microelectronic topography directly below the cavity.

6. The method of claim 1, wherein said ion metal plasma depositing a wetting layer comprises directing ionized metal atoms from a target toward the dielectric layer in a direction substantially perpendicular to the dielectric layer.

7. (Amended) The method of claim 1, wherein said ion metal plasma depositing a wetting layer comprises:

applying a sufficient DC power to a target to induce sputtering of metal atoms from the target and towards a pedestal below the topography, wherein the sputtered metal atoms comprise titanium;

applying a sufficient RF power to an induction coil between the target and the pedestal to ionize at least a portion of the metal ions sputtered from the target; and

applying the sufficient pedestal bias power to the pedestal to direct the ionized metal atoms towards the dielectric layer in a direction substantially normal to the dielectric layer.

8. (Amended) The method of claim 1, wherein the cavity comprises a via in the dielectric layer and extending to a conductive region of the topography.

9. (Amended) The method of claim 1, further comprising pre-cleaning said topography prior to said ion metal plasma depositing.

10. The method of claim 9, wherein said pre-cleaning comprises removing an upper portion of the dielectric layer to form tapered cavity sidewalls.

11. The method of claim 1, wherein the bulk metal layer comprises aluminum, and wherein the wetting layer comprises titanium.

30. (Added) A method for fabricating a metallization structure, comprising:

etching a cavity comprising a base and opposing sidewalls within a dielectric of a topography;

ion metal plasma depositing a wetting layer consisting essentially of titanium on and in contact with the base and the sidewalls of said cavity; and

sputter depositing substantially an entirety of a bulk metal layer on and in contact with the wetting layer.

IX. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-11 and 30 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge all required fees to Conley Rose, P.C. deposit account no. 03-2769/5298-03500.

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